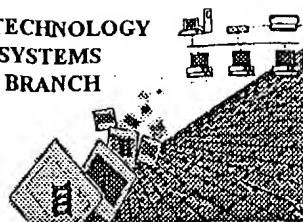


BIOTECHNOLOGY
SYSTEMS
BRANCH



RAW SEQUENCE LISTING
ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/858,332E
Source: IFW/6
Date Processed by STIC: 8/26/04

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION AND PATENTIN SOFTWARE QUESTIONS, PLEASE CONTACT MARK SPENCER, TELEPHONE: 571-272-2510; FAX: 571-273-0221

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER
VERSION 4.2 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND
TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:

<http://www.uspto.gov/web/offices/pac/checker/chkrnote.htm>

Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.

Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

1. EFS-Bio (<<http://www.uspto.gov/ebc/efs/downloads/documents.htm>> , EFS Submission User Manual - ePAVE)
2. U.S. Postal Service: Commissioner for Patents, P.O. Box-1450, Alexandria, VA 22313-1450
3. Hand-Carry, Federal Express, United Parcel Service, or other delivery service (EFFECTIVE 06/05/04):
U.S. Patent and Trademark Office, 220 20th Street S., Customer Window, Mail Stop Sequence, Crystal Plaza Two, Lobby, Room 1B03, Arlington, VA 22202

Revised 05/17/04



IFW16

RAW SEQUENCE LISTING

DATE: 08/26/2004

PATENT APPLICATION: US/09/858,332E

TIME: 11:22:51

Input Set : D:\SEQUENCE LISTING.TXT

Output Set: N:\CRF4\08262004\I858332E.raw

4 <110> APPLICANT: Tchaga, Grigory S.
 5 Jokhadze, George
 7 <120> TITLE OF INVENTION: Metal Ion Affinity Tags and Methods for
 8 Using the Same
 11 <130> FILE REFERENCE: CLON-056CIP
 13 <140> CURRENT APPLICATION NUMBER: US 09/858,332E
 14 <141> CURRENT FILING DATE: 2001-05-15
 16 <150> PRIOR APPLICATION NUMBER: 09/404,017
 17 <151> PRIOR FILING DATE: 1999-09-23
 19 <150> PRIOR APPLICATION NUMBER: 60/101,867
 20 <151> PRIOR FILING DATE: 1998-09-25
 22 <160> NUMBER OF SEQ ID NOS: 27
 24 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 26 <210> SEQ ID NO: 1
 27 <211> LENGTH: 16
 28 <212> TYPE: PRT
 29 <213> ORGANISM: Artificial Sequence
 31 <220> FEATURE:
 32 <223> OTHER INFORMATION: affinity peptide
 34 <400> SEQUENCE: 1
 35 His Leu Ile His Asn Val His Lys Glu Glu His Ala His Ala His Asn
 36 1 5 10 15
 39 <210> SEQ ID NO: 2
 40 <211> LENGTH: 18
 41 <212> TYPE: PRT
 42 <213> ORGANISM: Artificial Sequence
 44 <220> FEATURE:
 45 <223> OTHER INFORMATION: affinity peptide
 47 <400> SEQUENCE: 2
 48 His Asp Asp His Asp Asp His Asp Asp His Asp Asp His Asp Asp His
 49 1 5 10 15
 50 Asp Asp
 54 <210> SEQ ID NO: 3
 55 <211> LENGTH: 18
 56 <212> TYPE: PRT
 57 <213> ORGANISM: Artificial Sequence
 59 <220> FEATURE:
 60 <223> OTHER INFORMATION: affinity peptide
 62 <400> SEQUENCE: 3
 63 His Glu Glu His Glu Glu His Glu Glu His Glu Glu His Glu Glu His
 64 1 5 10 15
 65 Glu Glu
 69 <210> SEQ ID NO: 4

Does Not Comply
Corrected Diskette Needed

pp 2,6

RAW SEQUENCE LISTING

DATE: 08/26/2004

PATENT APPLICATION: US/09/858,332E

TIME: 11:22:51

Input Set : D:\SEQUENCE LISTING.TXT

Output Set : N:\CRF4\08262004\I858332E.raw

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70 <211> LENGTH: 18
71 <212> TYPE: PRT
72 <213> ORGANISM: Artificial Sequence
74 <220> FEATURE:
75 <223> OTHER INFORMATION: affinity peptide
77 <400> SEQUENCE: 4
78 His Asp Glu His Asp Glu His Glu Asn His Glu Asn His Glu Asp His
79 1 5 10 15
80 Glu Asp
84 <210> SEQ ID NO: 5
85 <211> LENGTH: 18
86 <212> TYPE: PRT
87 <213> ORGANISM: Artificial Sequence
89 <220> FEATURE:
90 <223> OTHER INFORMATION: affinity peptide
92 <400> SEQUENCE: 5
93 His Glu Asp His Glu Asp His Glu Asp His Glu Asp His Glu Asp His
94 1 5 10 15
95 Glu Asp
99 <210> SEQ ID NO: 6
100 <211> LENGTH: 5
101 <212> TYPE: PRT
C--> 102 <213> ORGANISM: Artificial Sequence
104 <220> FEATURE:
W--> 106 <223> OTHER INFORMATION: explorative mandatory in <2207-2237 section'
W--> 106 <400> 6 (see p.6 for error explorative)
107 Asp Asp Asp Asp Lys
108 1 5
111 <210> SEQ ID NO: 7
112 <211> LENGTH: 4
113 <212> TYPE: PRT
114 <213> ORGANISM: Artificial Sequence
116 <220> FEATURE:
117 <223> OTHER INFORMATION: enterokinase cleavage site
119 <400> SEQUENCE: 7
120 Ile Glu Gly Arg
121 1
124 <210> SEQ ID NO: 8
125 <211> LENGTH: 6
126 <212> TYPE: PRT
127 <213> ORGANISM: Artificial Sequence
129 <220> FEATURE:
130 <223> OTHER INFORMATION: a factor Xa cleavage site
132 <400> SEQUENCE: 8
133 Leu Val Pro Arg Gly Ser
134 1 5
137 <210> SEQ ID NO: 9
138 <211> LENGTH: 8
139 <212> TYPE: PRT

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RAW SEQUENCE LISTING

DATE: 08/26/2004

PATENT APPLICATION: US/09/858,332E

TIME: 11:22:51

Input Set : D:\SEQUENCE LISTING.TXT

Output Set: N:\CRF4\08262004\I858332E.raw

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140 <213> ORGANISM: Artificial Sequence
142 <220> FEATURE:
143 <223> OTHER INFORMATION: a thrombin cleavage site
145 <400> SEQUENCE: 9
146 His Pro Phe His Leu Val Ile His
147 1 5
150 <210> SEQ ID NO: 10
151 <211> LENGTH: 10
152 <212> TYPE: PRT
153 <213> ORGANISM: Artificial Sequence
155 <220> FEATURE:
156 <223> OTHER INFORMATION: a renin cleavage site
158 <400> SEQUENCE: 10
159 Cys Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
160 1 5 10
163 <210> SEQ ID NO: 11
164 <211> LENGTH: 8
165 <212> TYPE: PRT
166 <213> ORGANISM: Artificial Sequence
168 <220> FEATURE:
169 <223> OTHER INFORMATION: an immunological tag
171 <400> SEQUENCE: 11
172 Asp Tyr Lys Asp Asp Asp Lys
173 1 5
176 <210> SEQ ID NO: 12
177 <211> LENGTH: 11
178 <212> TYPE: PRT
179 <213> ORGANISM: Artificial Sequence
181 <220> FEATURE:
182 <223> OTHER INFORMATION: an immunological tag
184 <400> SEQUENCE: 12
185 Cys Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
186 1 5 10
189 <210> SEQ ID NO: 13
190 <211> LENGTH: 3426
191 <212> TYPE: DNA
192 <213> ORGANISM: Artificial Sequence
194 <220> FEATURE:
195 <223> OTHER INFORMATION: DNA sequence of vector containing cDNA of
196 recombinant enterokinase
198 <400> SEQUENCE: 13
199 gacgaaagg cctcgtgata cgcctat ttt tatagg ttaa t gtc atgata ata atgg ttt 60
200 cttagacgtc aggtggcact tttcggggaa atgtgcgcgg aacccctatt t gttt atttt 120
201 tctaaataca ttcaa atatg tatccgctca tgagacaata accctgataa atgcttcaat 180
202 aatattgaaa aaggaaagat atgagtattc aacatttccg tgcgcgccctt attccctttt 240
203 ttgcggcatt ttgccttcc tttttgctc acccagaaac gctggtgaaa gtaaaagatg 300
204 ctgaagatca gttgggtgca cgagtgggtt acatcgaaact ggatctcaac agcggtaaga 360
205 tccttgagag ttttcgcccc gaagaacgtt ttccaatgat gagcactttt aaagttctgc 420
206 tatgtggcgc ggtattatcc cgtattgacg ccgggcaaga gcaactcggt cgccgcatac 480

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RAW SEQUENCE LISTING

DATE: 08/26/2004

PATENT APPLICATION: US/09/858,332E

TIME: 11:22:51

Input Set : D:\SEQUENCE LISTING.TXT

Output Set: N:\CRF4\08262004\I858332E.raw

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207 actatttctca gaatgacttg gttgagtact caccagtcac agaaaagcat cttacggatg 540
208 gcatgacagt aagagaatta tgcagtgctg ccataacat gagtgataac actgcggcca 600
209 acttacttctt gacaacgacg ggaggaccga aggagctaac cgcttttttg cacaacatgg 660
210 gggatcatgt aactcgctt gatcggtggg aaccggagct gaatgaagcc ataccaaacg 720
211 acgagcgtga caccacgatg cctgtagcaa tggcaacaac gttgcgcaaa ctattaactg 780
212 gcgaactact tactctagct tcccggcaac aattaataga ctggatggag gcggataaag 840
213 ttgcaggacc acttctgcgc tcggcccttc cggtggctg gtttattgct gataaatctg 900
214 gagccggtga gcgtgggtct cgcggtatca ttgcagcact ggggccagat ggtaagccct 960
215 cccgtatcgt agttatctac acgacgggga gtcaggcaac tatggatgaa cgaaatagac 1020
216 agatcgctga gataggtgcc tcaactgatta agcattggta actgtcagac caagtctact 1080
217 catatatact ttagattgat ttaaaacttc atttttaatt taaaaggatc taggtgaaga 1140
218 tcttttttga taatctcatg accaaaatcc cttaacgtga gttttcgctt cactgagggg 1200
219 cagaccccgat agaaaagatc aaaggatctt cttgagatcc tttttttctg cgcgtaactc 1260
220 gctgcttgca aacaaaaaaa ccaccgctac cagcgggtgg ttggttgccg gatcaagagc 1320
221 taccaactct ttttcgaag gtaactggct tcagcagagc gcagatacca aatactgtcc 1380
222 ttctagtgtg gccgtagtta ggccaccact tcaagaactc tgtagcaccg cctacatacc 1440
223 tcgctctgct aatcctgtta ccagtggctg ctgccagtg cgataagtcg tgtcttaccg 1500
224 ggttggaactc aagacgatag ttaccggata aggcgcagcg gtcgggctga acgggggggt 1560
225 cgtgcacaca gccagcttg gagcgaacga cctacaccga actgagatac ctacagcgtg 1620
226 agctatgaga aagcgccacg ctcccgaaag ggagaaaaggc ggacaggatc ccggttaagc 1680
227 gcagggtcgg aacaggagag cgcacgaggg agcttccagg gggaaaacgc tggtatcttt 1740
228 atagtcctgt cgggtttcgc cactctgac ttgagcgtcg atttttgtga tgctcgtcag 1800
229 gggggcgagg cctatggaaa aacgccagca acgcggcctt tttacggttc ctggcctttt 1860
230 gctggccttt tgctcacatg ttctttctg cgttatcccc tgattctgtg gataaccgta 1920
231 ttaccgcctt tgagttagct gataccgctg gccgcagcgc aacgacagag cgcagcagat 1980
232 cagttagcga ggaagcggaa gagcgcccaa tacgcaaac gcctctcccc gcgcgttggc 2040
233 cgattcatta atgcagctgg cagcagaggt tccccgactg gaaagcgggc agtgagcgca 2100
234 acgcaattaa tgtgagttag ctcaactcatt aggcacccca ggctttacac tttatgcttc 2160
235 cggctcgtat gttgtgtgga attgtgagcg gataacaatt tcacacagga aacagctatg 2220
236 accatgatta cgccaagctt gaaggatcat ctcatccaca atgtccacaa agaggagcac 2280
237 gctcatgccc acaacaagat cgatattgtc ggaggaagtg actccagaga aggagcctgg 2340
238 ccttgggtcg ttgctctgta ttctgacgat caacaggctc gcggagcttc tctggtgagc 2400
239 agggattggc tgggtgctggc cgcccactgc gtgtacggga gaaatatgga gccgtctaag 2460
240 tggaaagcag tgctagcct gcataggca tcaaatctga cttctcctca gatagaaact 2520
241 aggttgattg accaaattgt cataaaccca cactacaata aacggagaaa gaacaatgac 2580
242 attgccatga tgcattctga aatgaaagtg aactacacag attatataca gcctatttgt 2640
243 ttaccagaag aaaatcaagt ttttccccca ggaagaattt gttctattgc tggctggggg 2700
244 gcacttatat atcaaggttc tactgcagac gtactgcaag aagctgacgt tccccctcta 2760
245 tcaaatgaga aatgtcaaca acagatgccg gaataataca ttacggaaaa tatggtgtgt 2820
246 gcaggctatg aagcaggagg ggtagattct tgtcagggggg attcaggcgg accactcatg 2880
247 tgccaagaaa acaacagatg gctcctggct ggcgtgacgt catttgata tcaatgtgca 2940
248 ctgcctaata gcccgagggt gtatgcccg gtcccaagg tcaacagagt gatacaaagt 3000
249 tttctacatg agctcgtaat tagctgagaa ttcactggcc gtcgttttac aacgtcgtga 3060
250 ctgggaaaac cctggcgta cccaacttaa tcgccttgca gcacatcccc ctttcgccag 3120
251 ctggcgtaat agcgaagagc ccgcaccga tcgccttccc caacagttgc gcagcctgaa 3180
252 tggcgaatgg cgcctgaggg ggtattttct ccttacgcac ctgtgcggtg tttcacaccg 3240
253 catatgggtg actctcagta caatctgtct tgatgccgca tagttaagcc agccccgaca 3300
254 cccgcaaca cccgctgacg cgccctgacg ggttgtctg ctcccgcat ccgcttacag 3360
255 acaagctgtg accgtctccg ggagctgcat gtgtcagagg ttttcaccgt catcaccgaa 3420

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RAW SEQUENCE LISTING

DATE: 08/26/2004

PATENT APPLICATION: US/09/858,332E

TIME: 11:22:51

Input Set : D:\SEQUENCE LISTING.TXT

Output Set: N:\CRF4\08262004\I858332E.raw

256 acgcgc 3426

258 <210> SEQ ID NO: 14

259 <211> LENGTH: 269

260 <212> TYPE: PRT

261 <213> ORGANISM: Artificial Sequence

263 <220> FEATURE:

264 <223> OTHER INFORMATION: protein sequence of vector containing cDNA of

265 recombinant enterokinase

267 <400> SEQUENCE: 14

268 Met Thr Met Ile Thr Pro Ser Leu Lys Asp His Leu Ile His Asn Val

269 1 5 10 15

270 His Lys Glu Glu His Ala His Ala His Asn Lys Ile Asp Ile Val Gly

271 20 25 30

272 Gly Ser Asp Ser Arg Glu Gly Ala Trp Pro Trp Val Val Ala Leu Tyr

273 35 40 45

274 Phe Asp Asp Gln Gln Val Cys Gly Ala Ser Leu Val Ser Arg Asp Trp

275 50 55 60

276 Leu Val Ser Ala Ala His Cys Val Tyr Gly Arg Asn Met Glu Pro Ser

277 65 70 75 80

278 Lys Trp Lys Ala Val Leu Gly Leu His Met Ala Ser Asn Leu Thr Ser

279 85 90 95

280 Pro Gln Ile Glu Thr Arg Leu Ile Asp Gln Ile Val Ile Asn Pro His

281 100 105 110

282 Tyr Asn Lys Arg Arg Lys Asn Asn Asp Ile Ala Met Met His Leu Glu

283 115 120 125

284 Met Lys Val Asn Tyr Thr Asp Tyr Ile Gln Pro Ile Cys Leu Pro Glu

285 130 135 140

286 Glu Asn Gln Val Phe Pro Pro Gly Arg Ile Cys Ser Ile Ala Gly Trp

287 145 150 155 160

288 Gly Ala Leu Ile Tyr Gln Gly Ser Thr Ala Asp Val Leu Gln Glu Ala

289 165 170 175

290 Asp Val Pro Leu Leu Ser Asn Glu Lys Cys Gln Gln Gln Met Pro Glu

291 180 185 190

292 Tyr Asn Ile Thr Glu Asn Met Val Cys Ala Gly Tyr Glu Ala Gly Gly

293 195 200 205

294 Val Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Met Cys Gln Glu

295 210 215 220

296 Asn Asn Arg Trp Leu Leu Ala Gly Val Thr Ser Phe Gly Tyr Gln Cys

297 225 230 235 240

298 Ala Leu Pro Asn Arg Pro Gly Val Tyr Ala Arg Val Pro Arg Phe Thr

299 245 250 255

300 Glu Trp Ile Gln Ser Phe Leu His Glu Leu Val Ile Ser

301 260 265

304 <210> SEQ ID NO: 15

305 <211> LENGTH: 12

306 <212> TYPE: PRT

307 <213> ORGANISM: Artificial Sequence

309 <220> FEATURE:

310 <223> OTHER INFORMATION: an amino acid sequence embodiment of the affinity

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/858,332E

DATE: 08/26/2004
TIME: 11:22:52

Input Set : D:\SEQUENCE LISTING.TXT
Output Set: N:\CRF4\08262004\I858332E.raw

PYI

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:21; Xaa Pos. 2,3,5,6,7,9

Seq#:23; Xaa Pos. 2,3,5,6,8,9

Use of <220> Feature(NEW RULES):

error explanation
Sequence(s) are missing the <220> Feature and associated headings.

Use of <220> to <223> is MANDATORY if <213> ORGANISM is "Artificial Sequence" or "Unknown". Please explain source of genetic material in <220> to <223> section (See "Federal Register," 6/01/98, Vol. 63, No. 104, pp.29631-32) (Sec.1.823 of new Rules)

Seq#:6

VERIFICATION SUMMARY

DATE: 08/26/2004

PATENT APPLICATION: US/09/858,332E

TIME: 11:22:52

Input Set : D:\SEQUENCE LISTING.TXT

Output Set: N:\CRF4\08262004\I858332E.raw

L:102 M:220 C: Keyword misspelled or invalid format, <213> ORGANISM for SEQ ID#:6
 L:106 M:258 W: Mandatory Feature missing, <223> Tag not found for SEQ#:6, <213>
 ORGANISM:Artificial Sequence
 L:106 M:258 W: Mandatory Feature missing, <223> Blank for SEQ#:6,Line#:106
 L:394 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:21
 L:399 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:21
 L:404 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:21
 L:409 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:21
 L:414 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:21
 L:415 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21 after pos.:0
 L:445 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:23
 L:449 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:23
 L:453 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:23
 L:457 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:23
 L:461 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:23
 L:462 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:0